

## RAIN SENSOR

### ABSTRACT OF THE INVENTION

A vehicular rain sensor system for detecting precipitation on an exterior surface of a window including a illumination sensor that is decoupled from the window. The illumination  
5 sensor is preferably an imaging array sensor which communicates a signal to a control which further determines whether rain is present on the window. The control preferably includes an edge detection function for detecting edges of precipitation droplets on the window and activating the windshield wipers of the vehicle when the number of edges detected exceeds a predetermined threshold value. A smoothing algorithm or filter is provided to account for  
10 surface irregularities on the window, thereby substantially precluding such irregularities from being erroneously detected as rain droplets by the edge detection function. The rain sensor system may further include a polarizing filter and an illumination source, such that the rain sensor system may not only prevent false signals of rain when only fog is present on an interior surface of the window, but also allows the rain sensor system to actually detect fog particles on  
15 an interior surface of the window, thereby allowing the control to further be connected to a ventilation blower within the vehicle for the purpose of activating the blower to eliminate the fog.